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APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
10/073,747	02/11/2002	Gary B. Gordon	10004367-1	5187

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07/23/2003

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EXAMINER

JUBA JR, JOHN

ART UNIT

PAPER NUMBER

2872

DATE MAILED: 07/23/2003

Please find below and/or attached an Office communication concerning this application or proceeding.

Office Action Summary

Applicati n No.

10/073,747

Applicant(s)

GORDON, GARY B.

Examiner

John Juba

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-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If the period for reply specified above is less than thirty (30) days, a reply within the statutory minimum of thirty (30) days will be considered timely.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133).
- Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

Status

- 1) ☒ Responsive to communication(s) filed on 19 May 2003.
- 2a) ☒ This action is **FINAL**. 2b) ☐ This action is non-final.
- 3) ☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

Disposition of Claims

- 4) ☒ Claim(s) 1-8, 10-12 and 14-21 is/are pending in the application.
- 4a) Of the above claim(s) _____ is/are withdrawn from consideration.
- 5) ☐ Claim(s) _____ is/are allowed.
- 6) ☒ Claim(s) 1-5, 8, 10-12, and 14-21 is/are rejected.
- 7) ☒ Claim(s) 6 and 7 is/are objected to.
- 8) ☐ Claim(s) _____ are subject to restriction and/or election requirement.

Application Papers

- 9) ☐ The specification is objected to by the Examiner.
- 10) ☐ The drawing(s) filed on _____ is/are: a) ☐ accepted or b) ☐ objected to by the Examiner.
- Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).
- 11) ☐ The proposed drawing correction filed on _____ is: a) ☐ approved b) ☐ disapproved by the Examiner.
- If approved, corrected drawings are required in reply to this Office action.
- 12) ☐ The oath or declaration is objected to by the Examiner.

Priority under 35 U.S.C. §§ 119 and 120

- 13) ☐ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
- a) ☐ All b) ☐ Some * c) ☐ None of:
1. ☐ Certified copies of the priority documents have been received.
2. ☐ Certified copies of the priority documents have been received in Application No. _____.
3. ☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).
- * See the attached detailed Office action for a list of the certified copies not received.
- 14) ☐ Acknowledgment is made of a claim for domestic priority under 35 U.S.C. § 119(e) (to a provisional application).
- a) ☐ The translation of the foreign language provisional application has been received.
- 15) ☐ Acknowledgment is made of a claim for domestic priority under 35 U.S.C. §§ 120 and/or 121.

Attachment(s)

- 1) ☒ Notice of References Cited (PTO-892)
- 2) ☐ Notice of Draftsperson's Patent Drawing Review (PTO-948)
- 3) ☐ Information Disclosure Statement(s) (PTO-1449) Paper No(s) _____.
- 4) ☐ Interview Summary (PTO-413) Paper No(s). _____.
- 5) ☐ Notice of Informal Patent Application (PTO-152)
- 6) ☐ Other:

DETAILED ACTION

Claim Rejections - 35 USC § 102

The following is a quotation of the appropriate paragraphs of 35 U.S.C. 102 that form the basis for the rejections under this section made in this Office action:

A person shall be entitled to a patent unless –

(b) the invention was patented or described in a printed publication in this or a foreign country or in public use or on sale in this country, more than one year prior to the date of application for patent in the United States.

(e) the invention was described in (1) an application for patent, published under section 122(b), by another filed in the United States before the invention by the applicant for patent or (2) a patent granted on an application for patent by another filed in the United States before the invention by the applicant for patent, except that an international application filed under the treaty defined in section 351(a) shall have the effects for purposes of this subsection of an application filed in the United States only if the international application designated the United States and was published under Article 21(2) of such treaty in the English language.

Claims 1 – 5, 8, 10 – 12, 14 – 18, and 21 are rejected under 35 U.S.C. 102(b) as being anticipated by Abbott, et al. Referring *initially* to Figure 2, Abbott, et al disclose an optical filter having an optical filter component (10) and a tuning assembly (100)(70)(60)(50)(40)(30)(25)(60/69)(150), the optical filter defining an optical path. By virtue of first and second partially reflective layers formed on windows (15)(20) and an air layer forming the cavity, the filter component (10) fairly constitutes a “multi-layer interference filter”, inherently having a propagation axis and exhibiting a length of physical path in the manner recited. The filter component has a compressible body portion (17), and the tuning assembly engages the end surfaces of the filter component and alters the length of the physical path of the filter component along the propagation axis by selectively placing the optical filter component under a degree of axial compression such that the filter component propagates at least a second frequency of


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light. The claims have been read as requiring the selective application of one of the two types of stress, rather than as requiring the selective application of each of the two types of stress.

With regard to claims 2 and 10 - 12, the tuning assembly includes a housing (100) having an elongated, cylindrical cavity with openings at either end communicating with the cavity. Washer (50) is disclosed as a force distribution member having a planar first surface configured, by virtue of this planarity, to apply substantially uniform force to the filter element. The filter element and force distribution member are clearly disposed within the cavity, as evident by inspection. Since it is the filter element, by virtue of the compressible body portion (17), rather than the washer (50), which is disclosed as undergoing a change in dimension, the examiner has reasonable belief that the force distribution member (50) is more rigid than the filter element.

With regard to claim 3, the filter component (10) is located between the housing (100) and a retaining member (150) which adjustably engages the housing along mating threads, such that adjusting the position of the retaining portion ultimately results in a change in the length of the physical path in the optical filter.

With regard to claims 5 and 8, an annular force compensating member (25) is arranged as recited and is operative to expand to apply a compressive force to the optical filter component. For example, as the retaining member is partially unthreaded from the housing, the compensating member (25) expands, yet maintains a compressive force in accordance with its spring constant.



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With particular regard to claim 15, the examiner regards the spring-biased washer (50) of Abbott, et al as a bearing surface that performs the function of placing the optical filter component under one of axial tension and axial compression in substantially the same way to produce substantially the same result as the means disclosed in the instant specification. That is, the examiner regards the means of Abbott, et al to be *prima facie* functional equivalents of the means disclosed. See *Micro Chem., Inc. V. Great Plains Chem. Co., Inc.*, 194 F.3d 1250, 52 USPQ.2d 1258 (Fed. Cir. 1999):

In construing claims drafted in § 112, ¶ 6 form, "[t]he statute does not permit limitation of a means-plus-function claim by adopting a function different from that explicitly recited in the claim. Nor does the statute permit incorporation of structure from the written description beyond that necessary to perform the claimed function."

With regard to claim 21, Abbott, et al teach tilting of the outer surfaces of windows (15)(20). Since the "propagation axis" is defined as normal to the filter surface (instant specification, Pg. 7, lines 8 – 10), it will be appreciated that the propagation axis of Abbott, et al is tilted with respect to the optical path.

Claims 1, 2, 10 – 12, and 14 – 20 are rejected under 35 U.S.C. 102(e) as being anticipated by Lee, et al. Referring *for example* to Figure 8 and the associated text, Lee, et al disclose an optical band pass filter component (850) and a tuning assembly (801)(811) (812)(820) for applying, axial tension to increase the length of the physical path through the filter, for applying axial compression for decreasing the length of the physical path through the filter, and/or reducing thermal drift of the filter characteristic.

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Since the force is applied via GRIN lenses (831)(832) and cement (841)(842), these components effectively are part of the tuning assembly engaging the filter element. The reference to "a typical thin film filter" in the discussion of the Figure 4A (Col. 5, line 15) makes it clear that Lee, et al anticipate that the filter element will be of one of the typical multilayer interference filters (e.g., band-pass; Col. 2, lines 22 – 25) illustrated for example in Figure 1. Lee, et al disclose the assembly as a "tunable filter" in which "an appropriate voltage" is applied to "elongate or compress" the actuator axially such that the "compression or stretching" is conveyed to the filter element (Col. 7, lines 58 – 67), and such that "the changing stress on the filter" tunes the wavelength. It should be apparent that if the wavelength is adjusted, Lee, et al disclose the filter operating at at least a first and a second frequency. Since Lee, et al teach that tension or compression can be applied by use of "an appropriate voltage", one of ordinary skill would understand Lee, et al as teaching selection of tension or compression through selection of an appropriate voltage.

With particular regard to claim 2, the actuator (801) of Lee, et al cooperates in the recited manner so as to comprehend a "housing".

With regard to claims 10 - 12, the housing defined by the actuator (801) may be regarded as having an elongated, cylindrical cavity with openings at either end communicating with the cavity. The filter element is clearly disposed within the cavity, and each of the GRIN lenses fairly comprises a force distribution member, whose extent, from the filter element to a respective opening lies within the cavity as recited. Each of the thus described force distribution members has a planar first surface

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configured, by virtue of this planarity, to apply substantially uniform force to the filter element. Since it is the filter element, rather than the lenses, which is disclosed as undergoing a change in dimension, the examiner has reasonable belief that the force distribution members (831)(832) are more rigid than the filter element. If such is not the case, then Applicant should demonstrate that this feature is not inherent. *In re Swinehart*, 169 USPQ 226 (CCPA 1971).

With particular regard to claim 15, the examiner regards the GRIN lenses and adhesive layers of Lee, et al as bearing surfaces that perform the function of placing the optical filter component under one of axial tension and axial compression in substantially the same way to produce substantially the same result as the means disclosed in the instant specification. That is, the examiner regards the means of Lee, et al to be *prima facie* functional equivalents of the means disclosed. See *Micro Chem., Inc. V. Great Plains Chem. Co., Inc.*, 194 F.3d 1250, 52 USPQ.2d 1258 (Fed. Cir. 1999):

In construing claims drafted in § 112, ¶ 6 form, "[t]he statute does not permit limitation of a means-plus-function claim by adopting a function different from that explicitly recited in the claim. Nor does the statute permit incorporation of structure from the written description beyond that necessary to perform the claimed function."

Allowable Subject Matter

Claims 6 and 7 are objected to as being dependent upon a rejected base claim, but would be allowable if rewritten in independent form including all of the limitations of the base claim and any intervening claims. The following is a statement of reasons for the indication of allowable subject matter:

The prior art, taken alone or in combination, fails to teach or to fairly suggest *in combination particularly wherein*

the force compensating element is formed of a piezoelectric material and is adapted to expand in response to an applied field to apply a compressive force to the optical filter component, as recited in claim 6; or wherein

the force compensating member is formed of a material exhibiting a coefficient of thermal expansion selected to substantially maintain the compressive force applied to the filter component when the filter component deforms in response to a change in temperature, as recited in claim 7.

Response to Amendment

Applicant's amendment is sufficient in overcoming the previous objection to claim 12 for an informality therein.

The previous rejection of claims 5 – 9 under 35 U.S.C. § 112, second paragraph has been overcome by amendment.

Applicant's amendment of claims 1, 15, and 16 is sufficient in overcoming the previous rejection of claims 1 – 4, 14 – 17, 19, and 21 under § 102(b) as being

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anticipated by Thorsten, et al, who disclose only tilting of the filter element and do not disclose application of axial tension or compression *to the filter element*.

The rejection of claims 1, 15 – 17 and 19 under § 102(e) as being anticipated by Liu, et al has been overcome by Applicant's amendment of claims 1, 15, and 17. (The cancellation of claims 22 – 24 obviates their rejection on these grounds.) One of ordinary skill would regard the assembly of Liu, et al as applying *lateral* tension and compression to the filter element. The expression "axial" tension or compression has been read in light of the specification. Insofar as only a propagation axis is recited in the claims, "axial" clearly must be read as relating to this axis, as opposed to some transverse axis of the filter.

Applicant's remarks amount to a general allegation that the claims define a patentable invention without specifically pointing out how the language of the claims patentably distinguishes them from the references. In particular, the amendment of claims 1, 15, and 16 is not seen as distinguishing over the prior art to Lee, et al, and the rejection of claims 1 and 14 – 20 under § 102(e) as being anticipated by Lee, et al stands as set forth above, along with the new rejection of claims 2 and 10 – 12 on these grounds. (The cancellation of claims 13 and 22 – 25 obviates their rejection on these grounds.)

Applicant's amendment of claims 1, 15, and 16 is sufficient in overcoming the previous rejection of claims 1 - 4, 10 - 12, and 15 – 18 under § 102(e) as being anticipated by Fernald, et al, since this reference does not disclose tuning of multilayer interference filters. (The cancellation of claim 22 obviates its rejection on these

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grounds.) For the same reason, the rejection of claims 5, 8, and 9 under § 103(a) as being unpatentable over Fernald, et al in view of Official notice has been overcome by amendment.

Conclusion

The prior art made of record and not relied upon is considered pertinent to applicant's disclosure.

Ryall, et al disclose tuning of a multilayer interference filter by application of *lateral* tensile or compressive stress.

Applicant's amendment necessitated the new ground(s) of rejection presented in this Office action. Accordingly, **THIS ACTION IS MADE FINAL**. See MPEP § 706.07(a). Applicant is reminded of the extension of time policy as set forth in 37 CFR 1.136(a).


A shortened statutory period for reply to this final action is set to expire **THREE MONTHS** from the mailing date of this action. In the event a first reply is filed within **TWO MONTHS** of the mailing date of this final action and the advisory action is not mailed until after the end of the **THREE-MONTH** shortened statutory period, then the shortened statutory period will expire on the date the advisory action is mailed, and any extension fee pursuant to 37 CFR 1.136(a) will be calculated from the mailing date of the advisory action. In no event, however, will the statutory period for reply expire later than **SIX MONTHS** from the date of this final action.

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Any inquiry concerning this communication or earlier communications from the examiner should be directed to Examiner Juba whose telephone number is (703) 308-4812. The examiner can normally be reached on Mon.-Fri. 9 - 5.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Mr. Drew Dunn can be reached on Mon.- Thu., 9 - 5. The fax phone numbers for the organization where this application or proceeding is assigned are (703) 872-9318 for regular communications and (703) 872-9319 for After Final communications.

Any inquiry of a general nature or relating to the status of this application or proceeding should be directed to the receptionist whose telephone number is (703) 308-0956.


JOHN JUBA
PRIMARY EXAMINER
Art Unit 2872

July 14, 2003